

Remarks

Reconsideration and allowance of this application, as amended, are respectfully requested.

Claims 2, 5, 8, and 12 have been amended. Claims 1 and 13 have been canceled without prejudice or disclaimer. New claims 16-20 have been added. Claims 2-12 and 14-20 are now pending in the application. Claims 12 and 20 are independent. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein. No new matter has been introduced through the foregoing amendments.

Claim 12 has been amended to incorporate features of the invention previously presented in now-canceled claim 13. New claims 16-20 have been added to further define the scope of protection sought for Applicants' invention. Entry of each of the amendments is respectfully requested.

35 U.S.C. § 102(b) / § 103(a) - Kinoshita

Claims 1-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,247,332 to Kinoshita et al. (hereinafter "Kinoshita").

The rejection of claims 1-15 under § 102(b) / § 103(a) based on Kinoshita is respectfully deemed to be obviated. For at least the following reasons, the disclosure of Kinoshita does not

anticipate and would not have rendered obvious Applicants' presently claimed invention.

By way of review, Applicants' invention is directed to a method of producing a fire-retardant flat structural member. The method is simple and economical, and provides a flat structural member with very good flame resistance properties. In addition, the invention is directed to a fire-retardant flat structural member produced according to the above-mentioned method.

As indicated above in the introductory remarks, claim 12 has been amended to incorporate features of the invention previously presented in now-canceled claim 13. Instant claim 12 defines a method that includes

heating a veneer sheet having pores so as to remove water from the pores thereof, the water that is removed being in a vapor phase; and

providing a resin within the pores, the resin that is provided being in a liquid phase,

the steps of heating and providing the resin being effected under an applied pressure such that the vapor phase water that is removed from the veneer sheet draws the liquid resin into the pores thereof.

According to the claimed method, the veneer sheet is heated under an applied pressure. Water that is within the pores of the veneer sheet is vaporized and removed therefrom. The water vapor that leaves the veneer sheet serves to draw the liquid resin into the vacated pores, thereby substituting the resin for the removed water vapor.

By substituting the resin for water in the pores, the negative properties of swelling and shrinking are reduced in the

wood material, which has a positive effect on the dimensional stability. In addition, of course, the fire resistance of the veneer sheet is considerably improved by the presence of the fire-resistant resin therein.

Kinoshita's "Flame Retarder Having Anti-Blooming Property" is different from Applicants' presently claimed invention. As evidence of just how different the disclosure of Kinoshita is from the present invention, Kinoshita is included in the background section of the instant specification (i.e., at page 1, the disclosure that "it describes the impregnation of a surface dried by the influence of heat with a water-soluble, fire-retardant agent").

Kinoshita describes a method of producing fire retardant veneers in which the surface dried by the influence of heat is impregnated with a *water soluble* fire-retardant agent. Kinoshita discloses that "[a]ny known water-soluble flame retardant agents can be employed in the present invention" (column 3, lines 23-24).

Kinoshita's method has three steps, i.e., "[t]he treatment of the improved woods to render them flame retardant is carried out by impregnating the improved woods with an aqueous solution of the flame retarder of the invention, drying and heat-treating the improved woods" (column 4, lines 20-24). After the first step of "impregnating the improved woods with an aqueous solution of the flame retarder," the impregnated wood is dried. With regard to the drying step, Kinoshita teaches that "[t]he

drying of the improved woods impregnated with an aqueous solution of the flame retarder is conducted at a temperature enough to remove the moisture within the improved wood" (column 4, lines 40-43). In a final step, Kinoshita teaches that "[a]fter drying, the improved wood is heat-treated to impart the water resistance or moisture-absorption resistance to a water-soluble polymer" (column 4, lines 51-53). Since Kinoshita impregnates the wood with the flame retarder solution before the moisture has been removed from the wood, Kinoshita's flame retarder can only soak into the pores of the material that are free of water.

That certainly is not Applicants' presently claimed invention. An important feature of Applicants' claimed method is the step of heating the veneer sheet so as to drive the water from the pores as the resin is added. That is, according to Applicants' claimed method, the water in the veneer is replaced with the resin by influence of the heating step. By supplying heat to the veneer, the water vapor escaping from the veneer draws the liquid resin into the pores of the veneer. By virtue of Applicants' claimed method, the amount of fire-retardant resin that can enter the pores of the wood is increased in a simple and economical manner. As a result, a wooden material with very good flame retarding properties is produced.

Furthermore, Applicants' claimed method uses the resin to provide the fire retarding properties of the material instead of

Kinoshita's water-soluble polymer based flame retardant agent. Usually, the resin (e.g., a phenol or an epoxy resin) as used according to the present invention is not water-soluble.

Since Kinoshita does not meet each feature of the claimed invention, Kinoshita does not anticipate the invention defined by Applicants' instant claim 12.

Furthermore, because of the aforementioned differences, there is simply no teaching in Kinoshita that would have led one to modify the reference in a way that would result in the embodiment of the invention defined by Applicants' instant claim 12.

Claims 2-11, 14, and 15 are allowable because they depend, either directly or indirectly, from claim 12, and for the subject matter recited therein.

New claims 16-20 have been added to further define the scope of protection sought for Applicants' invention. New claims 16-20 are also allowable. Kinoshita neither anticipates nor would have rendered obvious the various embodiments of the invention defined by any of claims 16-20.

In view of the foregoing, this application is now in condition for allowance. If the examiner believes that an

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interview might expedite prosecution, the examiner is invited to contact the undersigned.

Respectfully submitted,

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